Forestry Commission Scotland
Coimisean na Coilltearachd Alba

ACTION PLAN FOR RAMORUM ON LARCH IN SCOTLAND (2013/14)

Context

Actions for the health and biosecurity of Scotland's trees, woods and forests are set within the context of the overarching, sustainable forest management principles set out in the UK Forestry Standard[1] and the Scottish Forestry Strategy[2].

Sound evidence is a prerequisite for tree health actions. Scotland is well placed to provide this through its existing research providers and through the Scottish Government's support for joint strategic research initiatives such as the LWEC Tree Health and Plant Biosecurity Initiative[3].

This Action Plan supports delivery of the Disease Management Response Plan for *Phytophthora ramorum* in GB[4] which is set within the context of the Forestry Commission's interim Tree Health Biosecurity Strategy[5] and the Defra/Forestry Commission Action Plan for Tree Health and Plant Biosecurity[6]. It relates primarily to Japanese, European and Hybrid larch but also includes linkages with other key host species such as *Rhododendron ponticum* and blaeberry (*Vaccinium myrtillis*). Its delivery will be dependent on a wide range of partners in the state and private sectors, NGOs and the third sector.

The Plan will be reviewed annually or earlier if disease progression escalates significantly in-year.

Current situation

The fungus-like pathogen *Phytophthora ramorum* (*Pr*) was first detected in GB in 2002 but not seen in Scotland outside the nursery trade until 2007. Its global host range is wide (numerous species in over 70 host genera, representing at least 33 different plant families). Until 2009 *Pr* was mostly found to be infecting shrub species such as Rhododendrons (particularly *R. ponticum*), Viburnum, Pieris etc. It is referred to as

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[1] www.forestry.gov.uk/ukfs

[2] www.forestry.gov.uk/sfs

[3] www.lwec.org.uk/node/512

[4] Currently under revision by the GB *Phytophthora ramorum* Outbreak Management Team. General guidance is also available at: www.forestry.gov.uk/forestry/INFD-8XLE56 and www.forestry.gov.uk/website/forestry.nsf/byunique/infd-66ths4

[5] www.forestry.gov.uk/pdf/TreehealthStrategyMinisters.pdf/$FILE/TreehealthStrategyMinisters.pdf

[6] www.defra.gov.uk/food-farm/crops/plant-health/action-plan/

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Sudden Oak Death in the USA, but this is a misnomer in the UK as it rarely affects our native oaks. However, several other tree species, including some conifers, are more susceptible. In the UK, the only trees on which this pathogen is currently known to sporulate (reproduce) are sweet chestnut, ash, Holm oak and the larches. Japanese larch is particularly vulnerable and can die within one to two seasons, with consequential economic, environmental and amenity impacts. High *Pr* inoculum levels from infected Japanese larch also represent a wider risk to biodiversity and the historic environment: for example, blaeberry has been shown to be susceptible and *Pr* can have serious consequences for important gardens and designed landscapes. *Pr* was first detected on Japanese larch in south west England in 2009, followed by Wales, Scotland and Northern Ireland in 2010/11. There are currently 137 sites in Scotland with confirmed larch infection (primarily Japanese larch), amounting to 420 ha (out of 65,000 ha of larch woodland) but further infections are inevitable.

Strategic objective

Manage and control the rate of spread of *Pr* on larch to significantly reduce economic impacts to the forestry, nursery and ornamental garden sectors and to protect the health of trees and heathland.

Action Plan

Research

Support work to:

- develop a better understanding of the etiology, pathology and epidemiology of *Pr* in Scotland (with a particular focus on the EU2 lineage).
- support GB *Pr* modelling to support spatial disease management recommendations in Scotland.
- identify resistant larch trees in Scotland that could aid molecular work on resistance and which might provide to future breeding potential for 'resistance durability'.
- investigate the potential for cost-effective treatments, including resistance enhancements, for *Pr* on larch.
- investigate alternative, cost-effective surveillance techniques (e.g. use of remote sensing, spore trapping, water baiting etc).
- further develop rapid field diagnostic techniques for *Pr* in soil, water and plants.
- understand the wider biodiversity implications of *Pr* on larch and consider ways to mitigate negative impacts.

Detection

- Expand aerial surveys (by helicopter) to cover CEH-modelled high risk sites in the north east of Scotland.

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- Enhance FCS capacity to accelerate aerial survey photograph analysis, ground-truthing surveys and disease confirmation.
- Continue to explore the potential for ROAV[7] and remote sensing technology to assist with disease detection.
- Through the Phytophthora Scotland Steering Group, continue to enhance *Pr* survey capacity for heathland.
- Maintain current nursery and garden inspection regimes for *Pr* (Scottish Government Horticulture & Marketing Unit).

Precautionary measures

- Destruction of infected plants at nurseries.
- Continue to develop proportionate biosecurity measures for *Pr*.
- With partners, explore funding opportunities for the prophylactic removal of *Rhododendron ponticum* in high risk[8] areas.
- Revise the Scotland larch *Pr* risk zones[9] and supporting guidance on felling licensing (in the winter period) and replanting.
- Consider financial support measures for disease management (including opportunities in the next Scotland Rural Development Plan).

Dealing with infected stands

- Maintain current default policy[10] of felling/killing all larch within a 100m radius of confirmed larch infections and revise guidance on where felling/killing out to 250m would be desirable.
- Continue to offer targeted support measures to facilitate rapid removal/killing of infected larch stands.
- Facilitate prompt revision of Felling licences/Forest Plans to enable cost-effective and rapid harvesting of infected larch stands.
- Through the FC GB Phytophthora Outbreak Management Team, review and implement appropriate biosecurity measures in the timber supply chain[11], including a risk-based approach to the handling of non-larch timber from infected sites.

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[7] Remotely operated aerial vehicles

[8] Based on modelling work for the Scottish Government by the Centre for Ecology & Hydrology (CEH)

[9] These are based on the risk of pathogen spread: from 'high' in Risk Zone 1 to 'low' in Risk Zone. See: www.forestry.gov.uk/pdf/Pramorum_risk_zones_Oct11.pdf/$FILE/Pramorum_risk_zones_Oct11.pdf

[10] In exceptional circumstances, such as intensively managed sites where individual trees can be under constant observation by expert staff and where wholesale felling would be of major detriment to e.g. internationally recognised plant collections or recreation facilities, alternative disease management regimes can be considered.

[11] E.g. www.forestry.gov.uk/website/forestry.nsf/byunique/infd-849e4r

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- Actively encourage more processors to become authorised for handling timber from infected larch stands.
- Through the Scottish Timber Market Impacts Group, explore the implications of *Pr* for the production and marketing of timber from Scottish forests in the short term and over the next 25 years.
- Continue to develop and provide advice to the sector (including nurseries) on the use of alternative species in areas where larch is at high risk of infection by *Pr.*

Awareness-raising

- Align *Pr* within a refreshed FCS communications strategy for tree health issues in Scotland, particularly focusing on stakeholders associated with potential disease pathways (such as the 'active recreation' sectors).
- Support regular tree health seminars to raise awareness of this and other tree pests and diseases (stakeholders in the east of Scotland to be reminded of the need for continuing vigilance).
- Continue to work with partners to embed biosecurity awareness in the forestry, environmental and recreation sectors.
- Publish a broad assessment of the potential environmental, economic, landscape and social impacts of *Pr* on larch in Scotland.

Forestry Commission Scotland
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